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10/564,052	01/09/2006	Shigeyuki Nozaki	08917-110US1 F04-036-PCT/	5721
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OCCHIUTI ROHLICEK & TSAO, LLP 10 FAWCETT STREET CAMBRIDGE, MA 02138				
EXAMINER				
WINKLER, MELISSA A				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

INFO@ORTPATENT.COM

Office Action Summary

Application No.

10/564,052

Applicant(s)

NOZAKI ET AL.

Examiner

MELISSA WINKLER

Art Unit

1796

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-12,15,18,19 and 22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-12,15,18,19 and 22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3 – 8, 15, 18, 19, and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by US 6,107,358 to Harada et al.

Regarding Claim 1. Harada et al. teach a method for the production of a porous polymer in which bubbles are dispersed in an aqueous monomer solution and the solution subsequently undergoes copolymerization (Column 5, Lines 19 – 27). The monomer solution used contains an ethylenically unsaturated monomer such as acrylic acid (Column 5, Lines 28 – 30). Harada et al. further teach the amount of water-soluble cross-linking monomer, i.e. water-insoluble content, in the polymer is 0.001 - 2 parts by weight, based upon 100 parts by weight of the water-soluble unsaturated monomer, i.e. the water-soluble content (Column 6, Lines 40 – 51). The water-soluble cross-linking *monomer* taught by Harada et al. does exhibit water-solubility. However, upon polymerization and cross-linking, segments of the polymer containing units derived

from the water-soluble cross-linking monomer will no longer exhibit solubility. The act of crosslinking will inhibit the dissolution of these segments in water. Instead, these segments will swell to form a gel-type structure. Consequently, it is the Office's position that Harada et al. do teach the claimed porous polymer wherein the water-insoluble (crosslinked portions) of the polymer represent roughly 2 weight percent or less of the polymer while the remaining portions of the polymer are water-soluble (Harada et al.: Column 6, Lines 40 - 52).

Regarding Claim 3. Harada et al. teach the method of Claim 1 but are silent regarding the volume of the porous polymer after polymerization. Consequently, the Office realizes that all of the claimed effects or physical properties are not positively stated by the reference(s). However, the reference(s) teaches all of the claimed ingredient(s) and process limitation(s). Furthermore, while it is noted that Harada et al. do not teach the volume of the porous polymer after polymerization of the aqueous monomer solution, Harada et al. teach the volume of the aqueous monomer solution in which the bubbles have been dispersed is 1.02 – 5 times the volume of the aqueous monomer solution before the bubbles were dispersed (Column 14, Lines 9 – 34). Therefore, since Harada et al. teach the same materials and process steps, the volume of the polymer taught by Harada et al. after polymerization should be substantially similar to the claimed volume of the polymer after polymerization. If it is the applicant's

position that this would not be the case: (1) evidence would need to be provided to support the applicant's position; and (2) it would be the Office's position that the application contains inadequate disclosure that there is no teaching as to how to obtain the claimed properties with only the claimed ingredients.

Regarding Claim 15. Harada et al. teach the method of Claim 3 wherein the dispersion of bubbles in the aqueous monomer solution involves the addition of a foaming agent (Column 14, Lines 39 – 46).

Regarding Claim 22. Harada et al. teach the method of Claim 15 wherein the polymerization of the aqueous monomer solution is preferably performed in the presence of a surfactant (Column 8, Line 46 – Column 11, Line 61).

Regarding Claim 18. Harada et al. teach the method of Claim 3 wherein the polymerization of the aqueous monomer solution is preferably performed in the presence of a surfactant (Column 8, Line 46 – Column 11, Line 61).

Regarding Claim 4. Harada et al. teach the method of Claim 1 wherein the dispersion of bubbles in the aqueous monomer solution involves the addition of a foaming agent (Column 14, Lines 39 – 46).

Regarding Claim 19. Harada et al. teach the method of Claim 4 wherein the polymerization of the aqueous monomer solution is preferably performed in the presence of a surfactant (Column 8, Line 46 – Column 11, Line 61).

Regarding Claim 5. Harada et al. teach the method of Claim 1 wherein the polymerization of the aqueous monomer solution is preferably performed in the presence of a surfactant (Column 8, Line 46 – Column 11, Line 61).

Regarding Claim 6. Harada et al. teach the method of Claim 1 wherein the bubbles are of an inert gas and are dispersed in the aqueous monomer solution via intense stirring (Column 14, Lines 39 – 46). The bubbles remain dispersed in the aqueous solution while the monomers undergo polymerization (Column 14, Lines 6 – 10).

Regarding Claim 7. Harada et al. teach the method of Claim 1 wherein the polymerization occur at temperatures up to about 110°C or with exposure to ultraviolet light (Column 12, Lines 58 – 60 and Column 13, Lines 53 – 56).

Regarding Claim 8. Harada et al. teach the method of Claim 1 wherein the ethylenically unsaturated monomer is acrylic acid or salts of acrylic acid (Column 5, Lines 52 – 56).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 – 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,107,358 to Harada et al. in view of US 3,969,562 to Suzuki.

Regarding Claim 9. Harada et al. teach a method for the production of a porous polymer from an aqueous monomer solution containing an ethylenically unsaturated monomer such as acrylic acid (Column 5, Lines 28 – 30). Harada et al. further teach the amount of water-soluble cross-linking monomer, i.e. water-insoluble content, in the polymer is 0.001 - 2 parts by weight, based upon 100 parts by weight of the water-soluble unsaturated monomer, i.e. the water-soluble content (Column 6, Lines 40 – 51). The water-soluble cross-linking *monomer* taught by Harada et al. does exhibit water-solubility. However, upon polymerization and cross-linking, segments of the polymer containing units derived from the water-soluble cross-linking monomer will no longer exhibit solubility. The act of crosslinking will inhibit the dissolution of these segments in water. Instead, these segments will swell to form a gel-type structure. Consequently,

it is the Office's position that Harada et al. do teach the claimed porous polymer wherein the water-insoluble (crosslinked portions) of the polymer represent roughly 2 weight percent or less of the polymer while the remaining portions of the polymer are water-soluble (Harada et al.: Column 6, Lines 40 - 52).

Harada et al. are silent regarding the void ratio of the polymer. However, Suzuki also teaches a porous polymer with a void ratio in the range of 5 to 80% (Column 5, Lines 6 - 8). Harada et al. and Suzuki are analogous art as they are from the same field of endeavor, namely porous polymer compositions comprising acrylic compounds. At the time of invention, it would have been obvious to a person of ordinary skill in the art to manufacture the polymer taught by Harada et al. with the void ratio taught Suzuki. The motivation would have been that the void ratio taught by Suzuki provides advantages such as optimizing the strength and durability of the final product.

Regarding Claim 10. Harada et al. teach the polymer of Claim 9 may be in the form of a powder (Column 13, Lines 3 - 7).

Regarding Claim 12. Harada et al. teach the polymer of Claim 10. Regarding the claimed uses for the polymer, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987) (MPEP 2114)

Regarding Claim 11. Harada et al. teach the polymer of Claim 9. Regarding the claimed uses for the polymer, it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987) (MPEP 2114)

Response to Arguments

Applicant's arguments filed February 7, 2008 have been fully considered but they are not persuasive. Upon further consideration of the Harada et al. reference, the rejection under 35 U.S.C. 103(a) in view of Harada et al. has been withdrawn and new grounds of rejection under 35 U.S.C. 102(b) in view of Harada et al. have been set forth.

Regarding the applicants' assertion that the Harada et al. reference does not teach a water-soluble porous polymer with the claimed water-insoluble content of not more than 10 weight percent, the Office respectfully disagrees with this argument after additional consideration of this reference. As indicated in current rejection of Claim 1, Harada et al. teach the amount of water-soluble cross-linking monomer in the polymer is 0.001 - 2 parts by weight, based upon 100 parts by weight of the water-soluble unsaturated monomer (Column 6, Lines 40 - 51). The water-soluble cross-linking *monomer* does exhibit water-solubility. However, upon polymerization and cross-

linking, segments of the polymer containing units derived from the water-soluble cross-linking monomer will no longer exhibit solubility. The act of crosslinking will inhibit the dissolution of these segments in water. Instead, these segments will swell to form a gel-type structure. Consequently, it is the Office's position that Harada et al. do teach the claimed porous polymer wherein the water-insoluble (crosslinked portions) of the polymer represent roughly 2 weight percent or less of the polymer while the remaining portions of the polymer are water-soluble (Harada et al.: Column 6, Lines 40 - 52).

Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MELISSA WINKLER whose telephone number is (571)270-3305. The examiner can normally be reached on Monday - Friday 7:30AM - 5PM E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MARK EASHOO/
Supervisory Patent Examiner, Art Unit 1796
22-May-08

MW
May 21, 2008